

Commentary on the examination report from the PCT process

This commentary is intended as a note for the attorney who is handling the respective national process. This prefaced commentary is not intended to be handed on to the respective national patent office.

The attached version of the application includes a newly formulated patent claim 1 that differs from the **last version of the PCT application**. The changes in the PCT process are not to be taken into account. The changes **as against the version originally filed in the PCT process** are emphasized below:

1. A method for navigating in three-dimensional electronic image data records, the image data records including three-dimensional partial image data records, comprising the method steps of:

- optically displaying at least ~~one~~ two, mutually perpendicular two-dimensional projection of an image data record, ~~that at least one of the two projections~~ comprising a two-dimensional partial projection of at least one partial image data record,
- optically emphasizing the at least one two-dimensional partial projection,
- functionalizing the at least one optically emphasized partial projection in such a way that the latter can be selected by user input,
- receiving a user input directed toward the selection of at least one partial projection functionalized in such a way,
- automatically displacing as a function of the user input the at least one projection not comprising the at least one partial projection in such a way that it comprises the partial projection after the displacement ~~displaying optically at least one further two dimensional projection of the image data record that comprises a two dimensional projection of the selected partial image data record.~~

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Patent claims 2-5 are retained without being changed as against the version originally forming the basis of the PCT process.

As against the version originally forming the basis of the PCT process, an appreciation of the prior art is given on replacement pages 3, 3a and 4. Moreover, a literal reproduction of claim 1 has been removed in favor of a reference to this claim.

The more precise version of the first method step is based on the description of the figures in association with figure 1; as emerges on page 7 from lines 28 to 31, the projections illustrated in figure 1 are obtained "using the MPR method". The "multiplanar reformatting (MPR)" method is explained on page 2 in lines 33-36; in these methods, for example, mutually perpendicular two-dimensional projections are displayed. In this exemplary embodiment, mutually perpendicular two-dimensional projections are illustrated in figure 1 in the three so-called "viewports" 3, 4, 5. An abstracted dashed illustration of figure 1 can be gathered from figure 6.

The change in the last method step is based on figures 6 and 7 as well as on the associated description of the figures and, in particular, on page 10 in lines 6-10 as well as on page 10 in lines 22-30.

The aim below is to explain the invention in accordance with the more precise patent claim 1 with the aid of the exemplary embodiment described with reference to figures 6 and 7. Via the three mutually perpendicular two-dimensional projections in viewports 3, 4, 5, the drawing illustrates a tomogram 17 in a fourth viewport 11 in which a two-dimensional partial projection denoted in this exemplary embodiment as "hot spot" 19 is optically emphasized. The projections in viewports 3, 4, 5 show tomograms 14, 15 in randomly selected slice planes that do not include the hot spot 19.

The hot spot 19 in the tomogram 17 is functionalized in such a way that it can be selected by a user input in the form of a

mouse click. The last method step in accordance with the method claimed in the newly formulated patent claim 1 is designed in the exemplary embodiment as so-called "volume picking". As is described on page 10 in lines 28-30, this volume picking in the viewport 11 comprises automatically displacing the remaining projections, not comprising the hot spot 19, in the viewports 3, 4, 5 in such a way that these remaining projections include the hot spot 19 after the displacement. The result of this volume picking function is illustrated in figure 7; all projections in the

viewports 3, 4, 5, 11 now include the hot spot 19 after the displacement, the projections being mutually perpendicular, as before, in the viewports 3, 4, 5.

The fact that the two-dimensional projections remain in a mutually perpendicular orientation is an essential feature for navigating in the three-dimensional image data record; only by viewing projections at an angle to one another is it possible to orientate in the three-dimensional data record despite a display view that is restricted to two dimensions.

It is true that the citation D1 (GERING D T: "A System for Surgical Planning and Guidance using Image Fusion and Interventional MR" THESIS AT THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY, December 1999 (1999-12), pages 26-42) discloses an optical display of a number of two-dimensional projections of an image data record, a user input in the form of a click on an emphasized partial projection in one of the projections having the effect of automatically setting the focus in all projections onto the partial projection; however, this function described in section 2.3.5 "Reformatted Slice Location; relates to projections of identical orientation that exhibit only a different magnification factor. Displacing the projections while retaining a mutually perpendicular orientation - as in accordance with the present invention - is not described in citation D1. Consequently, the invention in accordance with the newly formulated patent claim 1 is novel as against a prior art in accordance with citation D1.

It is evident that displaying a number of projections in an identical orientation is directed toward displaying a partial projection, displayed with enlargement, within the two-dimensional environment in the same slice plane in a way that can be ordered. It follows that displaying and displacing mutually perpendicular projections for the purpose of navigating in a three-dimensional image data record cannot be

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suggested to the person skilled in the art on the basis of citation D1. For this reason, by contrast with citation D1, the invention in accordance with the newly formulated patent claim 1 is based on an inventive step.

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